

# INTRA - OFFICE MEMORANDUM

COUNTY OF SAN MATEO  
Department of Public Works

March 11, 2005

**TO:** Jill Boone, Waste Management and Recycling Division  
**FROM:** Bruce E. Kirk, Design and Project Development Division  
**RE:** Use of Recycled Material in Aggregate

## Summary of findings:

The table below summarizes the result of our investigation of the use of recycled material in aggregate.

Reference		Approved use of recycled material in aggregate	
		"YES"	"Not addressed"
<b>Caltrans Standard Spec (2002)</b>			
Section 25	Aggregate Subbases	X (50% or less of total volume)	
Section 26	Aggregate Bases	X (50% or less of total volume)	
Section 39	Asphalt Concrete		X
Section 51	Concrete Structures		X
Section 90	Portland Cement Concrete		X
<b>Boilerplates for Special Projects</b>			X
<b>"Greenbook" Standard Specifications for Public Works Construction (1994)</b>			
Section 200-2.4	Crushed Miscellaneous Base	X	
Section 200-2.5	Processed Miscellaneous Base	X	
Section 200-2.6	Select Subbase	X	

Section 201-1	Portland Cement Concrete		X
Section 203-6	Asphalt Concrete		X

As shown above, other than Section 25 and Section 26 of the Caltrans Standard Specification and Section 200-2.4, 200-2.5 and 200-2.6 of the “Greenbook” which specifically state that the usage of recycled material in aggregate base is allowed, most of the reference material does not directly address recycled material in aggregate.

Our findings indicate that the use of recycled material should be limited to aggregate base and aggregate subbase material used in roads, foundations, and trenches at this point. Current literature indicates that there is consideration for use of recycled concrete as the aggregate for the new concrete mix; however, this is still under study and has not been approved.

We have incorporated the use of recycled material in aggregate base in the County’s boilerplate specification. Section 26 –Aggregate Base (Class 2) of the County’s specification is modified with the insertion of the following:

[Aggregate base shall consist of reclaimed aggregate material up to 50% of the total volume whenever possible, as allowed in the first paragraph of Section 26-1.02A, "Class 2 Aggregate Base," which states:

“.... Aggregate may include material processed from reclaimed asphalt concrete, portland cement concrete, lean concrete base, cement treated base or a combination of any of these materials. The amount of reclaimed material shall not exceed 50 percent of the total volume of the aggregate used.”]

In addition, we have included a system for tracking recycled aggregate in our database as they are used on a project.

**Additional Information:**

Additional information on recycled aggregate may be found on the following California Integrated Waste Management Board website link:

<http://www.ciwmb.ca.gov/ConDemo/Aggregate/>

**Estimated Cost:**

Estimated cost of aggregate base with or without recycled material is approximately \$5.50 - \$6.50 per ton and are available at the following locations in the Bay Area:

Harbor Sand and Gravel	Graniterock	Langley Hill Quarry
775 Seaport Boulevard	355 Blomquist Street	19500 Skyline Boulevard
Redwood City, CA 94063	Redwood City, CA 94063	Woodside, CA
(650) 369-9189	(650) 482-3838	(650) 851-0179

Harbor Sand and Gravel and Graniterock provide aggregate base with recycled material only and no virgin material while Langley Hill Quarry provides both. Note that the above-mentioned cost is the same for aggregate base with or without recycled material.

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Enclosure: As stated

cc: Don Williams, Waste and Environmental Services Manager  
Diana Shu, Senior Civil Engineer, Design and Project Development  
Wency Ng, Associate Civil Engineer, Design and Project Development